

(42 & A-19)

SEAT No. \_\_\_\_\_

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Sardar Patel University

Sixth Semester Examination—2018

Class---TYBSc Biotechnology

3 Credit Course ----US06CBIT03 (Enzymology)

Date ---31/03/2018 (Saturday)

Time 10.00am -1.00pm

Total marks 70

Q1. Multiple choice questions. Attempt all questions.

[10]

i. Eadie Hofstee plot is drawn between the values of

(A)  $1/V$  versus  $1/S$  (B)  $V$  versus  $S$  (C)  $V$  versus  $V/S$  (D)  $S/V$  versus  $V$

ii. Koshland's theory of enzyme action is known as

(A) Reduced fit theory (B) Lock and Key theory  
(C) Induced fit theory (D) Enzyme coenzyme theory

iii. The term enzyme was coined by

(A) Wilhelm Kühne (B) Louis Pasteur (C) Eduard Buchner (D) James Sumner

iv. Ribozymes are:

(A) enzymes which use ribose as substrates  
(B) enzymes working on ribonucleic acids  
(C) ribonucleic acids with enzyme activity  
(D) enzyme-ribonucleic acid complexes

v. Value of  $K_m$  remains unchanged with

(A) Non competitive inhibitors (C) Competitive inhibitors  
(B) Uncompetitive inhibitors (D) Irreversible inhibitors

vi. Blocking action of enzyme through blocking its active site is

(A) Allosteric inhibition  
(B) Feedback inhibition  
(C) Competitive inhibition  
(D) Non-competitive inhibition

vii. The bitter taste of the high protein materials is reduced by using

(A) Invertase (B) Pectinase (C) Protease (D) Lipase

viii. Clear and stable juice is produced by adding

(A) Glucanase (B) Amylase (C) Pectinase (D) Chitinase

ix. Lysozyme is naturally present in

(A) Egg white (B) Bacteria (C) Tears & milk (D) All of these

x. The most commonly employed cross-linked polymer is the

(A) Polyacrylamide gel  
(B) Collagen  
(C) Cellulose  
(D) Cation exchange resin

Q2. Short question. Attempt any TEN questions.

[20]

- Define and explain zero order reactions and steady state.
- Draw LB plot in presence of non competitive inhibitors.
- Derive Hannes-Woolf equation and draw the plot.
- Define and explain activation energy.
- Define immobilization and enlist all the techniques used for immobilization
- Define cross linking technique and give its advantages.
- What are the benefits and limitations of enzyme immobilization?
- Explain the term bating in leather industry
- Enlist the advantages of submerged culture for enzyme production.
- Mention the applications of enzymes in detergents.
- Define and explain  $K_m$  and  $K_{cat}$
- What is substrate inhibition?

(1)

(P.T.O)

- Q3a. Enlist the factors affecting enzyme activity. Discuss the effect of pH and temperature on enzyme activity. [07]
- Q3b. Explain Lock and key theory of enzyme action. [03]
- OR
- Q3a. Describe the structure and functioning of an allosteric enzyme. [07]
- Q3b. Discuss the specificity of enzyme action. [03]
- Q4a. In presence of non competitive inhibitor derive MM equation and draw LB plot. [07]
- Q4b. Explain in detail LB plot with its significance and drawback. [03]
- OR
- Q4a. Derive Michaelis Menten equation. [07]
- Q4b. What are irreversible inhibitors? explain. [03]
- Q5 Enlist all the material which can be used for immobilization. Discuss in detail about natural polymers. [10]
- OR
- Q5a. Describe in detail adsorption and crosslinking methods of immobilization. [07]
- Q5b List out the properties of an ideal carrier matrix used for immobilization. [03]
- Q6a What are the applications of enzymes in food industry, discuss. [07]
- Q6b. Enlist the applications of enzymes in Biotechnology. [03]
- OR
- Q6a. How amylase can be produced from different sources? [07]
- Q6b. Define and give the significance of micelle, reverse micelle and liposome. [03]